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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,079	03/23/2006	John Wolsey Cook	36-1970	7001

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EXAMINER	
GAY, SONIA L	

ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/573,079	COOK, JOHN WOLSEY	
	Examiner	Art Unit	
	SONIA GAY	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *2-6 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-10,12-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to Amendment submitted on 10/01/2008 in which claims 1, 7-10, and 12 – 16 are submitted for examination. This application has been re-assigned to Examiner Sonia Gay. All future communications should be directed accordingly.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/01/2008 has been entered.

Claim Rejections - 35 USC § 102

2. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Natra et al. (EP 1009156).

As to claim 13, Natra et al. teaches a subscriber unit in a telecommunications network having a transmission line divided into at least first and second sections by an intermediate node, said subscriber unit interconnecting a local telephone with said second section of an electrical transmission line, said first section of the electrical transmission line connecting an exchange to said intermediate node and arranged in operation to carry telephony control signals and voiceband signals supplied onto said first section, (Figure 1, *10a, 10b, 10c*; [0018][0019] [0023-0025]), said subscriber unit comprising:

a power supply arranged in operation to supply electrical power onto said second section of electrical transmission line for use at said intermediate network node (*as an option, the DC voltage supplied via input line* 48 *can also be used to power the subscriber line interface circuitry (SLIC) in the network termination unit*, [0022]);

a control signal converter arranged in operation (a) to convert telephony control signals supplied by said telephone into modified upstream control signals having a frequency that is different than the frequency of voiceband and control signals appearing on said first section compatible with said exchange, and (b) to convert similarly modified downstream control signals into telephony control signals having a frequency that is again compatible with said exchange ([0023] [0024]).

Claim Rejections - 35 USC § 103

3. Claim 1, 9-10, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natra et al. (EP 1009156) in view of Reusens(US 7,003,089), and further in view of Emericks et al. (US 6,973,181).

For claim 1, Natra et al. discloses a system for providing a telephony service between an exchange and a telephone said system comprising:

an exchange (Figure 1, *telephone exchange* 38);

a telephone remote control unit connected locally to provide telephony control and voiceband signals to a telephone at the subscriber's control unit (Figure 1, *10a, 10b, 10c*; [0019] [0023-0025]).

an electrical transmission line network connecting said exchange and said telephone remote control unit (Figure 1, *36, 31a, 31b, 31c*);

an intermediate node inserted in said electrical transmission line, said node defining a first section of said electrical transmission line extending from said exchange to said node, and a second section of said electrical transmission line extending from said node to said telephone remote control unit, said exchange, in use, supplying telephony control signals and voiceband signals onto said first section of electrical transmission line (Figure 1, *network termination unit* 35; [0018] [0020]).

a power supply at said remote control unit arranged to supply electrical power onto said second section of electrical transmission line for use at said network node (*as an option, the DC voltage supplied via input line* 48 *can also be used to power the subscriber line interface circuitry (SLIC) in the network termination unit*, [0022]);

said node comprising electrical equipment in operation to draw electrical power supplied by said power supply from said second section of electrical transmission line (*as an option, the DC voltage supplied via input line* 48 *can also be used to power the subscriber line interface circuitry (SLIC) in the network termination unit*, [0022]); and,

a second control signal converter at said remote control unit connected to said telephone for converting a downstream control signal into control signals of the type supplied by said exchange ([0023]).

Yet, Natra et al. fails to teach

a first signal converter at said network node arranged in operation to convert telephony control signals supplied by said exchange into modified downstream control signals having a

frequency that is different than the frequency of telephony, voiceband and control signals appearing on said first section of electrical transmission line, and said downstream control signals being supplied onto said second section of electrical transmission line; And,

However, Natra et al. discloses that the telephone network produces and sends a telephony control signal (activating *signal*, [0023]) with a frequency lower than a typical telephony control signal to the remote control unit for the purpose of notifying the remote control unit to generate a telephony control signal which is typically produced by the telephone network ([0023]).

Additionally, Reusens discloses a telephony system for the purpose of producing a typical telephony control signal within a remote control unit wherein a telephony control signal with that has both lower voltage and frequency than a typical telephony control signal is produced and sent by a device in the telephony system which comprises line interfaces to the remote control unit as disclosed above in Natra et al. (Abstract; column 2 lines 11 – 46; column 4 lines 52 – column 5 line 3; column 6 lines 5 – 21, 36 – 38).

Moreover, Emericks et al. discloses a device for the purpose of controlling the magnitude of the generated telephony control signal (*ring signal*, Abstract) of the subscriber line interface circuit (SLIC) wherein the voltage of outgoing subscriber lines are compared to a reference voltage so that the telephony control signal voltage is reduced if the voltage on the subscriber lines is below a selected reference voltage (Abstract; column 2 lines 42 - 63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Natra et al. with the teachings of Reusens and Emericks et al. so that the network termination unit with SLIC as disclosed above in Natra et al. comprises a converter which uses the first telephony control signals voltage supplied by the exchange as a reference voltage to provide the modified downstream control signals that have a lower voltage and frequency than the first telephony control signals for the purpose of transmitting control signals according the amount of power supplied by the subscriber lines.

For claim 9, the teachings of Natra et al. and Reusens further discloses wherein said node further comprises a filter arranged in operation to allow said voiceband signals to pass across said remote control unit with minimal attenuation while substantially attenuating all other signals (Natra et al., [0022]) (Reusens, column 4 lines 52 – column 5 line 3; column 5 lines 4-17).

For claim 10, the teachings of Natra et al. and Reusens further discloses wherein said remote control unit further comprises a filter arranged in operation to allow said voiceband signals to pass across said remote control unit with minimal attenuation while substantially attenuating all other signals (Natra, [0007] [0021]) (Reusens, column 7 lines 66 – column 8 line 14, 31 - 36).

For claim 14, Natra et al. discloses a method of providing a telephony service between an exchange and a telephone, wherein said exchange and said telephone are connected by an electrical transmission line having a node inserted therein, said node defining a first section of said electrical transmission line extending from said exchange to said

node, and a second section of said electrical transmission line extending from said node to said telephone (Abstract; Figure 1, *network termination unit* 35; [0012][0018] [0020][0023]) , said method comprising:

(i) supplying telephony control signals of a first type and voiceband signals from said exchange onto said first section ([0018]);

(ii) supplying electrical power onto said second section from a remote end thereof local to said telephone at a subscriber's premises ([0022]);

(iv) operating electrical equipment in said node to draw electrical power from said second section as applied to the remote end ([0022]).

Yet, Natra et al. fails to teach converting telephony control signals of said first type supplied by said exchange into modified downstream control signals of a second type having a frequency that is different than the frequency of telephony, voiceband, and control signals appearing on said first section.

However, Natra et al. discloses that the telephone network produces and sends a telephony control signal (activating *signal*, [0023]) with a frequency lower than a typical telephony control signal to the remote control unit for the purpose of notifying the remote control unit to generate a telephony control signal which is typically produced by the telephone network ([0023]).

Additionally, Reusens discloses a telephony system for the purpose of producing a typical telephony control signal within a remote control unit wherein a telephony control signal with that has both lower voltage and frequency than a typical telephony control signal is

produced and sent by a device in the telephony system which comprises line interfaces to the remote control unit as disclosed above in Natra et al. (Abstract; column 2 lines 11 – 46; column 4 lines 52 – column 5 line 3; column 6 lines 5 – 21, 36 – 38).

Moreover, Emericks et al. discloses a device for the purpose of controlling the magnitude of the generated telephony control signal (*ring signal*, Abstract) of the subscriber line interface circuit (SLIC) wherein the voltage of outgoing subscriber lines are compared to a reference voltage so that the telephony control signal voltage is reduced if the voltage on the subscriber lines is below a selected reference voltage (Abstract; column 2 lines 42 - 63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Natra et al. with the teachings of Reusens and Emericks et al. so that the network termination unit with SLIC as disclosed above in Natra et al. comprises a converter which uses the first telephony control signals voltage supplied by the exchange as a reference voltage to provide the modified downstream control signals that have a lower voltage and frequency than the first telephony control signals for the purpose of transmitting control signals according the amount of power supplied by the subscriber lines.

For claims 15 and 16, Natra et al. discloses a method and apparatus with means for providing telephone service, said method and apparatus comprising:

utilizing telephony control signals of a first type in a first section of a telephone transmission line located between a telephone exchange and a node in said transmission line ([0004][0018]);

at said subscriber unit, converting between said second type of telephony control signals and said first type of telephony control signals which are for use by a subscriber telephone ([0023]);

at said subscriber unit, supplying DC power onto said second section of transmission line ([0022]); and,

at said node, powering electrical circuits with DC power supplied onto said second section of transmission line while blocking passage of said DC power onto said first section of transmission line ([0021][0022]).

Yet, Natra et al. fails to teach at said node, converting between said first type of telephony control signals and a second type of telephony control signals utilized on a second section of the transmission line located between the node and a subscriber unit located at a subscriber's premises, said first and second types of control signals utilizing different frequency bands outside of voiceband frequencies;

However, Natra et al. discloses that the telephone network produces and sends a telephony control signal (activating *signal*, [0023]) with a frequency lower than a typical telephony control signal to the remote control unit for the purpose of notifying the remote control unit to generate a telephony control signal which is typically produced by the telephone network ([0023]).

Additionally, Reusens discloses a telephony system for the purpose of producing a typical telephony control signal within a remote control unit wherein a telephony control signal with that has both lower voltage and frequency than a typical telephony control signal is

produced and sent by a device in the telephony system which comprises line interfaces to the remote control unit as disclosed above in Natra et al. (Abstract; column 2 lines 11 – 46; column 4 lines 52 – column 5 line 3; column 6 lines 5 – 21, 36 – 38).

Moreover, Emericks et al. discloses a device for the purpose of controlling the magnitude of the generated telephony control signal (*ring signal*, Abstract) of the subscriber line interface circuit (SLIC) wherein the voltage of outgoing subscriber lines are compared to a reference voltage so that the telephony control signal voltage is reduced if the voltage on the subscriber lines is below a selected reference voltage (Abstract; column 2 lines 42 - 63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Natra et al. with the teachings of Reusens and Emericks et al. so that the network termination unit with SLIC as disclosed above in Natra et al. comprises a converter which uses the first telephony control signals voltage supplied by the exchange as a reference voltage to provide the modified downstream control signals that have a lower voltage and frequency than the first telephony control signals for the purpose of transmitting control signals according the amount of power supplied by the subscriber lines.

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natra et al. (EP 1009156) in view of Reusens(US 7,003,089), and further in view of Emericks et al. (US 6,973,181), and further in view of Examiner's Official Notice.

For claims 7 and 8, the teachings of Natra et al. and Reusens fails to teach wherein said node and remote control unit node further comprises a bypass transmission line connected to

switch means for automatically bypassing said first or second signal converter in the event said power supply fails.

However, Natra et al. discloses that in prior and current systems, the power is fed from the exchange (Natra et al., column 1 lines 24 – 34). Moreover, Reusens discloses that typical, high voltage, telephony control signals are transmitted to the remote control unit when there is power failure at the remote control unit (Reusens, column 7 lines 10 - 25). The examiner takes official notice that if usual telephony control signals are transmitted to the remote control unit, then there must be a bypass transmission line with the appropriate power supply for the purpose of transmitting the typical, high voltage telephony control signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to include a bypass transmission line for the purpose of transmitting the typical, high voltage telephony control signals to the remote control unit in case of power failure.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Natra et al. (EP 1009156) in view of Reusens(US 7,003,089), and further in view of Emericks et al. (US 6,973,181), and further in view of Examiner's Official Notice.

For claim 12, Natra et al. discloses a node in a telecommunications network, said node interconnecting first and second sections of an electrical transmission line extending, said electrical transmission line connecting exchange at an opposite end of said first section to telephone subscriber unit at an opposite end of said second section, said exchange being arranged in operation to supply telephony control signals and voiceband signals onto said first section,

said node comprising electrical transmission line (Figure 1, *network termination unit* 35; [0018] [0020]), said node comprising:

said node comprising electrical equipment arranged in operation to draw electrical power supplied by said power supply from said second section of electrical transmission line.

Yet, Natra et al fails to teach

a signal converter at arranged in operation (a) to convert downstream telephony control signals supplied by said exchange onto said first section into modified downstream control onto said second section having a frequency that is different than the frequency of telephony, voiceband and control signals supplied by said exchange (b) to convert similarly modified upstream control signals received from a subscriber unit via said second section into upstream telephony control signals having a frequency compatible with said exchange.

However, Natra et al. discloses that the telephone network produces and sends a telephony control signal (activating *signal*, [0023]) with a frequency lower than a typical telephony control signal to the remote control unit for the purpose of notifying the remote control unit to generate a telephony control signal which is typically produced by the telephone network ([0023]). Moreover, Natra et al. discloses that the subscriber unit produces modified upstream telephony control signals (*special tone signals, outside the voice band, which are different for the on-hook and off-hook states*[0024]) for the purpose of transmitting the telephony control signals across transmission lines with lower power parameters and voltage requirements ([0023][0024]).

Additionally, Reusens discloses a telephony system for the purpose of producing a typical telephony control signal within a remote control unit wherein a telephony control signal

with that has both lower voltage and frequency than a typical telephony control signal is produced and sent by a device in the telephony system which comprises line interfaces to the remote control unit as disclosed above in Natra et al. (Abstract; column 2 lines 11 – 46; column 4 lines 52 – column 5 line 3; column 6 lines 5 – 21, 36 – 38).

Moreover, Emericks et al. discloses a device for the purpose of controlling the magnitude of the generated telephony control signal (*ring signal*, Abstract) of the subscriber line interface circuit (SLIC) wherein the voltage of outgoing subscriber lines are compared to a reference voltage so that the telephony control signal voltage is reduced if the voltage on the subscriber lines is below a selected reference voltage (Abstract; column 2 lines 42 - 63).

Additionally, examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of applicant's invention that upstream telephony control signals would have to be modified back to typical, telephony control signals for the purpose of transmitting the signals back to the exchange which interprets typical, high voltage telephony control signals.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Natra et al. with the teachings of Reusens and Emericks et al. so that the network termination unit with SLIC as disclosed above in Natra et al. comprises a converter which uses the first telephony control signals voltage supplied by the exchange as a reference voltage to provide the modified downstream control signals that have a lower voltage and frequency than the first telephony control signals for the purpose of transmitting control signals according the amount of power supplied by the subscriber lines; and,

converts modified, low voltage, lower frequency upstream control signals into high voltage, higher frequency upstream telephony control signals for the purpose of transmitting the signals back to the exchange which interprets the typical, high voltage, higher frequency telephony control signals.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 9-10, and 12- 14 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's arguments with respect to the rejection(s) of claim(s) 7- 8have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SONIA GAY whose telephone number is (571)270-1951. The examiner can normally be reached on Monday to Thursday from 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sonia Gay/
Examiner, Art Unit 2614

February 11, 2009

/Ahmad F Matar/
Supervisory Patent Examiner, Art Unit 2614